

REMARKS

Claims 1-17 are all the claims pending in the application. Claims 11-17 are rejected. Claim 11 is amended. Claims 1-10 are withdrawn from consideration.

Election of Invention

Applicant's election of Group II method invention without traverse 12/18/08 has been acknowledged. Thus, product claims 1- 17 are withdrawn. To the extent possible, Applicants respectfully request rejoinder. .

Claim Rejections – 35 USC 103

Claims 11-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over Onoda et al (JA 2002-220259) with either Miyamoto et al (JA 2001-167427 or US 2002/0110706) - either in further view of Isono et al (US 2005/0284179).

Amended Claim 11

The present invention, as defined in amended claim 11, relates to a method for manufacturing a magnetic disk glass substrate for use in a hard disk drive.

The magnetic disk glass substrate has a disk thickness of less than 0.5 mm and mirror-finished main surfaces. Thus, the magnetic disk glass according to the present invention is suitably used for a small hard disk drive (having a disk thickness of less than 0.5 mm) capable of being installed in highly mobile apparatuses.

Furthermore, according to the present invention, the melted mixture of at least three alkali metal nitrates contains 0.001% to 0.3% by volume of a nitrate of alkali metal having a smallest ion radius among the alkali metal nitrates so as to satisfy both high impact resistance of 3000 G or more and low waviness (Wa) of 1.0 nm or less.

These are features of the present invention recited in claim 11. The cited references fail to disclose or suggest these features.

Onoda

Onoda disclosed dipping the glass substrate into the water solution containing the lithium salt to suppress the alkali elution from the surface of the glass substrate.

No Chemical Strengthening in Onoda

Applicants respectfully submit that Onoda does not relate to chemical-strengthening. This reason will be explained below.

Specifically, in chemical-strengthening, an alkali metal ion of the glass is exchanged by an alkali metal ion having a larger ion radius to form the compressive stress layer, as described at paragraph [0005] of the original specification. On the other hand, in Onoda, an alkali metal ion of the glass is exchanged by an alkali metal ion having a smaller ion radius to suppress the alkali elution, as described at paragraph [0023].

Thus, the present invention is clearly different from Onoda with regard to an ion-exchange method.

Specified Parameters Differ in Onoda

On the basis of the present-amendment, the invention is expressly defined so that the magnetic disk glass substrate has a impact resistance of 3000 G or more and the main surface of the magnetic disk glass substrate has a waviness (Wa) of 1.0 nm or less (see paragraphs [0019], [0020] of the instant specification). Accordingly, the present invention is not routinely optimized based upon the description of Onoda.

Miyamoto

Miyamoto relates to any of a 2.5 inch hard disk drive, a 3 inch hard disk drive and a 3.5 inch hard disk drive, as described at paragraph [0038].

However, recently, a small hard disk drive (having a disk thickness of less than 0.5 mm) has been installed in highly mobile apparatuses (see paragraph [0009] of the instant specification). Because of such a change of the application, higher impact resistance is has been required. With increase of information recording density of the magnetic disk, techniques adopted in the 2.5 inch hard disk drive or the 3.5 inch hard disk drive do not satisfy the higher impact resistance (see paragraph [0016] of the instant specification). The present invention has been made to perform under such a background.

Miyamoto fails to disclose the higher impact resistance “3000 G or more” of the present invention.

Miyamoto discloses that the durability against defects or the resistance to destruction property is degraded if the value of the compressive stress is low.

However, Miyamoto fails to teach the magnetic disk glass which is used for a small hard disk drive (having a disk thickness of less than 0.5 mm) capable of being installed in highly mobile apparatuses.

By contrast, according to the present invention, the impact resistance is 3000 G or more so as to be used for a small hard disk drive (having a disk thickness of less than 0.5 mm) capable of being installed in highly mobile apparatuses.

Furthermore, Miyamoto does not disclose the feature of the present invention, i.e., “the waviness (Wa) is 1.0 nm or less”.

Accordingly, the present invention is not routinely optimized based upon the description of Miyamoto.

Isono

Isono et al (2005/0284179) and the present application are commonly owned by Hoya Corporation, as is clear on the face of the publication . Moreover, Isono et al claims a US effective filing date of March 12, 2004 but was not published until December 29, 2005, well after the effective U.S. filing date of the present application (March 24, 2005) and less than one year before the filing date of the U.S. national stage application (September 26, 2005).

Thus, Isono et al is not prior art under 35 U.S.C. §102(b) but may be available as prior art under 35 USC 102(e). Isono has been combined with other prior art in a rejection under 35 U.S.C. § 103.

Applicants respectfully submit that Isono et al should be removed as a reference by Hoya Corporation asserting rights under 35 U.S.C. § 103(c). Specifically, Hoya asserts that “... *the subject matter and the claimed invention were, at the time the claimed invention was made, owned by the same person or subject to an obligation of assignment to the same person.*”

With Isono removed, the rejection must be withdrawn.

Relevant Limitations Are in Claim Body

Finally, Applicants note that by the above-amendment, not only the limitation “a disk thickness of less than 0.5 mm but also the limitations “a impact resistance of 3000 G or more and a waviness (Wa) of 1.0 nm or less” are present in the body, not the preamble.

Conclusion

As discussed above, the cited references (Onoda, Miyamoto) fail to disclose the features of the present invention. Isono is withdrawn. Accordingly, the present invention is clearly patentable over the cited references.

Finally, Applicants note the Examiner’s comment that “Applicant's claim for the benefit of prior-filed US Provisional Application 60/556,021 has been acknowledged, conditions for receiving the benefit of an earlier filed date under 37 CFR 1.78a,5(iv)1, including a certified English translation, have not been complied.”

Applicants will file a verified translation of the U.S. Provisional Application upon demonstration such translation is necessary to overcome the rejection. However, with the withdrawal of Isono, the outstanding rejection would be withdrawn.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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